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**FIVE-YEAR REVIEW REPORT**

**WADE (ABM) SITE**

**CHESTER, PENNSYLVANIA**

Prepared By:

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Region III

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Date

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## **1.0 Introduction**

EPA has conducted a five-year review of the remedial action at the Wade (ABM) Superfund Site ("Wade") located in Chester, Delaware County, Pennsylvania (See Figure 1-1). Section 121(c) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended by the Superfund Amendments and Reauthorization Act (SARA), and Section 300.430(f)(4)(ii) of the National Oil and Hazardous Substances Contingency Plan mandate that a remedial action be reviewed no less often than every five years after initiation of the remedial action, at sites where hazardous substances, pollutants or contaminants remain above levels that allow for unlimited use and unrestricted exposure. Five-year reviews are conducted in accordance with the guidance document, "Structure and Components of Five-Year Reviews", OSWER Directive 9355.7-02, May 23, 1991.

Because the Record of Decision (ROD) for this Site was issued prior to the enactment of SARA, the review was not required by statute. EPA has, however, instituted a policy to conduct five-year reviews at pre-SARA sites which have contaminants remaining on-site. The objective of the five-year review was to evaluate whether the remedial action implemented at the site remains protective of public health and the environment. Wade was deleted from the National Priorities List (NPL) on March 23, 1989.

## **2.0 Summary of the Remedial Action**

The United States Environmental Protection Agency (EPA) issued a final ROD for the Wade Site in August, 1984 (see Site diagram in figure 1). PADER concurred with the ROD and was given the status of lead-agency to remediate the Wade Site.

Hydrogeological studies conducted during the Remedial Investigation showed that contaminated groundwater flowing from the Wade Site discharges into the directly adjacent Delaware River. These studies further indicated that if the upper five feet of contaminated soil were removed from the site, the continued leaching of the remaining soil contaminants to the groundwater and the subsequent flow of contaminated groundwater into the Delaware River would have negligible impact on the river's water quality.

The ROD described the remedial action to be implemented at the site, including the demolition and removal of fire-damaged buildings, excavation of contaminated soil to a maximum depth of five feet, removal and disposal of that soil, backfilling, regrading and contouring the site with imported fill and covering the entire site with a vegetated topsoil cap. The selected remedial action also required the installation of a security



fence and the implementation of a long term Operation and Maintenance (O&M) program consisting of annual groundwater monitoring and site inspections along with maintenance to the fence and cap when necessary. As the lead agency, PADER conducted the remedial action and also agreed to conduct the O&M according to the attached O&M Sampling Plan (attachment 1).

### **3.0 Summary of the Operation and Maintenance Plan**

According to the 1984 ROD and the O&M Plan, the Site is required to undergo the following O&M activities:

1. Site Inspection: visual inspection of surface conditions and monitoring wells.
2. Installation of Upgradient Monitoring Wells: The ROD required additional upgradient monitoring well clusters in off-site locations for monitoring groundwater quality before it flows under the site, however the O&M Plan concluded that two existing wells would adequately provide this information.
3. Water Sampling: To monitor groundwater quality.
4. Laboratory Analysis: Groundwater samples will be analyzed for contaminants, with a reevaluation of sampling protocol after five years.
5. Replacement of Monitoring Wells: As necessary.
6. Well maintenance and Rehabilitation: Every five years.
7. Topsoil Maintenance: Every two years.
8. Mowing of Grass: Yearly, during the growing season, as needed.

### **4.0 Scope of Work**

The technical approach for conducting this five-year review was formulated based on information contained in OSWER Directives 9320.2-3A and 9355.7-02. The approach used included performance of the following three tasks:

1. Review of Background and Current O&M Information
2. Site Walkover
3. Preparation of this Summary Report

Activities associated with tasks 1 and 2 are described below.

#### **4.1 Review of Background and Current O&M Information**

For background information, EPA reviewed the Wade site file located at EPA Region III Office in Philadelphia, Pennsylvania. Categories of information available there include Site Identification, Remedial Enforcement Planning, Remedial Response Planning, Remedial Enforcement Implementation, and Remedial Implementation.

As the Wade Site continues to be a state lead site during O&M, EPA reviewed additional information supplied by PADER. Mr. David Ewold represented the state and supplied EPA with the operation and maintenance information.

The O&M Sampling Plan was compiled in 1988. According to that plan, sampling of the on-site wells for groundwater monitoring should have been conducted on a yearly basis beginning in 1989.

EPA has received and reviewed sampling results from April of 1989 (See attachment 2). The results from the 1989 sampling were not validated and are not reliable as quantitative measurements. However, the raw data indicates that groundwater was contaminated at the site at the time of sampling.

EPA has also received results from sampling conducted in July, 1991 (See attachment 3). There are problems that exist with this round of sampling. Specifically, a chain of custody report was not received by the laboratory conducting the analysis and some of the labels on the sample bottles were difficult to read. Some of the samples exhibited poor surrogate recoveries indicating that the contaminants may have been present in greater concentrations than reported.

Although the information from this last round of sampling is flawed as described, the data is acceptable for the limited purposes of comparison with the concentrations reported in the 1984 ROD and confirmation of the effectiveness of the remedial action. This data is being discussed here in the capacity of a screening tool. Notably, the concentrations in the on-site groundwater have apparently diminished significantly (in most cases, multiple orders of magnitude) from the concentrations reported in the ROD (Table 1).

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**TABLE 1. COMPARISON OF ROD DATA WITH 1991 SAMPLING DATA  
FOR THE WADE (ABM) SUPERFUND SITE**

<u>Contaminant</u>	<u>ROD Data(ppb)</u>	<u>1991 Data(ppb)</u>
Methylene Chloride	B4A - 11400 B3A - 114	B4A - NS B3A - 7
Acetone	B4A - 135000	B4A - 130
1,1 Dichloroethane	B4A - 3400	B4A - ND
Chloroform	B4A - 27000 B8 - 146 B8A - 144 B4 - 55 B3 - 50	B4A - ND B8 - NS B8A - NS B4 - ND B3 - ND
1,2 Dichloroethane	B3A - 6500 B8A - 282 B4 - 88 B6 - 74 B8 - 30	B3A - 2 B8A - NS B4 - ND B6 - 49 B8 - NS
1,1,1 Trichloroethane	B4A - 21600 B8A - 425 B8 - 77 B4 - 72 B3 - 49 B1A - 10	B4A - ND B8A - NS B8 - NS B4 - ND B3 - ND B1A - ND
1,2 Dichloropropane	B3A - 7050 B4A - 1780 B9 - 450 B9A - 237 B5A - 229 B2 - 56 B8A - 35 B8 - 19	B3A - 12 B4A - 65 B9 - NS B9A - NS B5A - NS B2 - NS B8A - NS B8 - NS
Trichloroethene	B4AB - 5300 B4 - 24 B3 - 17	B4AB - 320 B4 - ND B3 - ND
Benzene	B4A - 3100 B6,B6A - <2	B4A - ND B6,B6A - ND
Tetrachloroethene	B8A - 21 B9 - 12	B8A - NS B9 - NS
Toluene	B4A - 12400 B6,6A - <2	B4A - ND B6,6A - ND
Chlorobenzene	B2 - 2200 B6 - 56	B2 - NS B6 - ND
Ethyl Benzene	B4A - 730 B6 - 14	B4A - ND B6 - ND

**Key:** NS - Not Sampled  
ND - Not Detected

#### 4.2 Site Walkover

A site walkover was conducted by the EPA Remedial Project Manager for the site on October 30, 1992. Vegetation covered the site except for the paved area by the entrance gate. The vegetation consisted of a variety of weeds ranging between three and five feet in height and prevented the location and inspection of most of the wells on the site. The tall weeds also prevented a close inspection for signs of erosion of the topsoil cap, however, there were no obvious erosion problems. It was a warm day and it was noted that there was a profuse and thriving insect population, as would be expected at a riverside site that has been allowed to revert to wild vegetation.

At the back of the property, approximately fifty feet from the river, there appeared a trail cutting completely across the property parallel to the river. The trail, measuring about a foot wide, was worn down to bare soil. At the northern end of this trail, the security fence has been cut allowing easy access from the adjacent property. At the southern end, the top of the security fence was disconnected from the fenceposts. This would allow the fence to be pulled down and walked over, completing a shortcut along the river. Additionally, the bottom of the security fence, to the right of the property's front access gate, has been bent to provide enough room for an adult to easily crawl under at that point.

Some caps to the wells located on the adjacent Delaware River Port Authority property were unlocked, immobilized with rust or broken off. The fencing along this property was also deformed to continue the shortcut along the river.

#### 5.0 Conclusions

In accordance with the ROD and the O&M Plan, the vegetation/grass must be mowed routinely and the security fence and wells must be repaired and maintained. Future groundwater monitoring and analysis must be conducted in accordance with accepted procedures to assure the quality and useability of the resulting data for decision making. PADER should document these activities in written reports copied to EPA.

As of this writing, PADER has scheduled and completed the field work for the annual site inspection and groundwater monitoring. Prior to that visit, a PADER contractor mowed the grass for the final time this growing season. In a verbal report of that visit, Dave Ewald indicated that PADER is aware of the necessity of repairing the fence and the monitoring wells, and will address the maintenance requirements appropriately. At this time, the analytical results of the groundwater monitoring have not been processed, however, EPA will be copied on the Site

Inspection Report detailing the findings of the inspection and the analytical results of the sampling.

The comparison of the groundwater data, as shown in Table 1, indicates that the contamination in the groundwater has diminished significantly since the issuance of the ROD in 1984. This is the anticipated effect of removing the bulk of the contamination during the excavation at the site and the natural attenuation of the residual contamination through the action of the groundwater underlying the site. As was discussed in the ROD, the underlying groundwater discharges into the Delaware river where the remaining contaminants are diluted to the extent of no measurable impact. The cap is intact with no apparent erosion channels and is covered by a dense stand of vegetation. The breaches in the security fence have allowed access to the site but the cap surface has not been disturbed aside from one "shortcut" through the property. That trail has served only to compact the surface soil further in that limited area and there is no evidence of exposure to contaminated soil.

The next five-year review will be scheduled and conducted in 1998. It is anticipated that with further groundwater data available, EPA may recommend that five-year reviews be discontinued at that time.

#### **6.0 Statement on Protectiveness**

The remedy as selected in the 1984 Record of Decision for this Site was determined to be protective of human health and the environment due to the clean soil cap and the negligible affect of the contaminants on water quality of the Delaware River. The cap remains intact, thereby minimizing the potential for direct exposure to the residual contaminants at the Site, and the on-site groundwater contamination has significantly decreased, further minimizing the already negligible impact to the Delaware River.

As determined by this five-year review, the remedy remains protective of human health and the environment as was intended in the 1984 Record of Decision for this Site. Further, the residual contamination is apparently continuing to decrease due to the action of the groundwater and natural attenuation.